Montana
Board of Environmental Review
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Upper Blackfoot Mining Complex Tour (UBMC)
July 29, 2004

Call to Order

The Board of Environmental Review's UBMC Tour began at the Mike Horse Pretreatment Pond at approximately 9:30 a.m.

Attendance

Board Members Present: Chairman Joseph Russell, Kim Lacey, Ward Shanahan, Dr. Garon Smith, Russell Hudson, and David Fishbaugh

Board Attorney Present: Tom Bowe, Attorney General's Office, Department of Justice

Board Secretary Present: Joyce Wittenberg

Court Reporter Present: None (the tour was recorded by DEQ employee Jamesa Dodd)

Department Personnel Present: Jan Sensibaugh, Director; Tom Livers, Deputy Director; Lisa Peterson, Director's Office (DIR); John North, Legal, DIR; Steve Welch, Administrator, Permitting & Compliance Division (PCD); Tom Reid, Water Protection Bureau, PCD; Art Compton, Administrator, Planning, Prevention & Assistance Division (PPAD); Christian Levine, Water Quality Planning Bureau (WQPB), PPAD; Robert Bukantis, WQPB, PPAD

Interested Persons Present *(Disclaimer: Names are spelled as best they can be read from the official sign-in sheet.)*: Bill Olson, US Fish and Wildlife Service; Tina Bernd-Cohen, Blackfoot Challenge; Jerry Meyer, Helena National Forest; Lorri Berkenbel, Atlantic Richfield; Fred Lurie, Big Blackfoot Challenge of Trout Unlimited (BBCTU); Len Walch, Helena National Forest, US Forest Service (USFS); Carolyn Louis, BBCTU; Dawn Paul, University of Montana, REU; Scott Noblih, University of Montana, REU; Jon Krutar, Montana Blackfoot Legacy; Rob Roberts, Trout Unlimited; Amber Kampor, Helena National Forest, USFS; Terry Chute, USFS; Beth Ihle, Helena National Forest, USFS; Matt Clifford, Clark Fork Coalition; Bruce Farling, Montana Trout Unlimited; Brian McDonald, Blackfoot Challenge; Mandy Alvino, USFS; Jane Kollmeyor, USFS; Chris Pfahl, ASARCO

At the Mike Horse Pretreatment Pond, Chris Pfahl provided history of the Mike Horse Mine.

- The mine was operated from the late 1800s until the late 1950s.
- ASARCO bought the property in 1944.
- It had been a lead-zinc mine.
- From 1941 on, the tailings went through a flume around to a tailings pond.
- In the late 1980s, the site was chosen by the Montana Abandoned Mine Lands program to be reclaimed and about the same time the CECRA program came on line and the site became a CECRA site. Reclamation funding was sought from ASARCO, as the owner, and ARCO, who had leased the property in the 60s.
- ARCO had drilled out a large ore body, which had never been developed but was expected to be in the future.
- Reclamation work at the site by ASARCO began in 1991; some of the construction was done in 1994 – 1995.
- Water coming out of the adit is low pH, and contains iron up to 100 ppm, zinc at 30 ppm, and some other minor metals. All of those levels exceed water quality standards and are not good for fish downstream.
- Early sampling was of the river system and determined the areas where the most loading of metals was coming from. This adit was the number one spot and therefore was being treated first. The water is being treated and discharged under a MPDES permit. As part of that, ASARCO obtained temporary water quality standards through the Board to gain more time to finish the project.
- The affected land is a mix of private land, patented mining claims, and Helena National Forest land.
- ASARCO entered into an Administrative Order on Consent with the Forest Service about a year ago to deal with mine waste issues on the public land. The tailings pond is entirely on public land.
- The Mike Horse was not a high-profit mine; it was run primarily during World War II, when there were government subsidies designed to encourage mining.
- The vast majority of production occurred from 1941 through 1957.

Mr. Pfahl explained the process of the pretreatment pond. He said an inline oxidation system is used to rust the iron and the pond is used to settle out the iron before the water is sent down the system for treatment. He said the water then goes down to the filter bed. In this process, Mr. Pfahl said 99 – 100 percent of the iron is removed, 90 – 95 percent of the zinc is removed, and 90 – 100 percent of all the minor metals are removed. He said the biggest challenge has been the weather, but from a construction standpoint it has been a cost-challenging project from day one.

Mr. Pfahl said ASARCO is not in the best financial shape, though the site has been high on ASARCO's priority list. He said there is a trust fund that funds all of ASARCO's projects

nationwide. He said it costs about $60-70 thousand per year to operate this treatment system. He said the filter system plugs up and is a constant maintenance problem, although ASARCO is looking at long-term solutions.

Discussion took place regarding the sludge. The sludge passes TCLP; therefore, it is not a hazardous waste and is disposed under Montana solid waste rules.

Mr. Pfahl said ASARCO has probably spent $8 million on this site and ARCO has probably spent $3 or $4 million on this cleanup. He said ARCO's involvement relates to the exploration of the ore body that sits adjacent to the pretreatment pond. He said ASARCO and ARCO have a cost-sharing agreement.

The tour continued at the Upper Mike Horse waste piles. Participants viewed light green-colored rocks in the bed of the Mike Horse Creek. Mr. Pfahl said it was copper-aluminum hydroxide that is precipitating in the creek and is coming from two mine waste piles that ASARCO is proposing to remove this year. He said it is a known load that is pretty much continuous and looks worse when it rains.

Mr. Bukantis said sampling of the creek is done four times a year and that samples of the material that precipitates is high in copper and aluminum.

Tour attendees moved on and viewed the Upper Mike Horse Creek from the diversion dam to the main road. Mr. Bukantis said seepage from mine waste causes the green copper precipitate in the creek. He said the water is really acidic, pH 3. He said the wells were put in -- one shallow and one deep -- to see how deep the bad water went. He said the shallow well water is bad -- high in copper, zinc, and aluminum. He said the deeper well water has some metals, but at much lower levels. Mr. Bukantis concluded that the cause of the metals in seeps is probably the mine waste that was left in place there.

Mr. Pfahl said ASARCO has submitted a workplan to the state and is currently working through some final issues. He said the contractor is finishing work at the Black Pine Mine and would move to this site in mid - late August. He said they would have about two months of work to do at this site.

Mr. Bowers referred to photos in a document that was provided. He said the photos showed this same area before the 1998 remediation. He said there were originally five piles there that were graded. He said numbers 1 and 4 are the ones to be removed, and numbers 5, 3, and 2 are under a stormwater permit that has not been closed out. He said the vegetation would not sufficiently meet criteria for the stormwater permit. Mr. Bowers said the piles would be assessed as to whether they are contributing, but that the data suggest they are not.

Mr. Bowers discussed the revegetation. He said no topsoil was brought in – what we were seeing was direct revegetation and much of what was planted did not grow.

Mr. Pfahl discussed maintenance of the site. He said maintenance on the non-water issues is minimal. He said a person comes up once a week and checks the dams and piping. He said they estimate a little over $200,000 for this project, some of which is being spent on engineering and regulatory issues – about $350,000 annually is being shared between the state and the Forest Service. He said there are three projects that it funds: 1) the EECA with the Forest Service, which will finish this first portion shortly; 2) operation and maintenance of the water treatment system; 3) this construction project, of which the vast majority of the funds this year were earmarked.

Mr. Pfahl said the cost of the construction isn't so much digging up the material, but that it will be trucked so many miles to the repository and then mixed with lime to neutralize it so that it cannot leach once it is in the repository.

Mr. Pfahl said the EECAs with the Forest Service cover both discreet mine wastes that are in the creek below the Mike Horse where it turns to public land and also dispersed and concentrated tailings.

Tour attendees viewed the Mike Horse repository. Mr. Bowers said the waste has a lot of pyrite in it and that it will generate acid and leach metals. He said there are some seeps that have been sampled to see what sort of load is coming out of them.

Mr. Bowers referred to a photo dated "6 10 '97", which was included in a document that was provided. He said this was the first photograph in DEQ files that documents the concern about a seep. He said at that time the seep was a minimal trickle of water coming out at the base of the repository. He said that we would be viewing one of the primary seeps that is now occurring so that we can better understand that in the seven years since completion, the seep has changed quite a bit. Mr. Bowers explained that this is one of the things the Department is very concerned about – wanting to know what the reliability of this repository is going to be in the future. He said state superfund looks at both short-term reliability, as well as long-term reliability.

The tour moved on to view the seep. Mr. Bowers pointed out that the vegetation was fairly steady coming down the road, but that once the seep is introduced the vegetation and where it grows becomes more selective. He said ARSARCO is sampling the seep and that it is currently a concern. Discussions commenced regarding the algae and the possible difference between the red and the green.

Mr. Bowers posed to ASARCO that seven years ago this was only a trickle, now there's a steady flow – what will this look like in 14 years? What will it look like in 50 years?

Attendees moved on to view the Mike Horse Townsite. Mr. Pfahl directed attendees to a photograph included in a packet that was provided to them. He pointed out that in the photograph the tailings dam was operating. He said it was an upstream-constructed dam that was built of tailings and that as the tailings were deposited along the crest of the dam it built itself up.

Mr. Pfahl referred to a 1975 aerial photograph of the area and said a diversion had been built around the dam. He said the diversion had failed during a summer storm event – the pond had filled with water and the dam breached over in the far corner. He said Anaconda Company had the property leased at that time, so it was under its watch that it occurred. He said they reconstructed the dam – that it now has a 5:1 slope. He said the material they used to reconstruct the dam came out of a pit and that it is very high in pyrite, which is what gives it the orange rust color. He said the matter is being addressed through the Forest Service EECA.

Mr. Pfahl said the Forest Service has some issues about the long-term stability of the dam, as does ASARCO, and they do not want to see the dam fail ever again. He said they do not know what the ultimate remedy will be – that's the purpose of doing the EECA. He said they have done test pits, looked at the groundwater, drilled some additional piezometers to monitor the groundwater levels, and that they have an on-going monitoring program. Mr. Pfahl said a primary issue is large seeps coming out from under the tailings pond. He said the seep has water in it and that it seasonally goes up and down. He believed most of the water was coming from

the pond and going through the fill at the interface with the old tailings, where they set the waste rock against it. He said there is pyrite in the rock and that it is actually the rock in the dam that is reacting, causing the water quality in these seeps to be degraded. Mr. Pfahl said the water in the pond meets water quality criteria – there are fish in it. He said the issue with the dam is long-term stability and safety – there are about 800 or 900 thousand tons of tailings behind this dam. He said the metal concentrations in the tailings would probably run in the thousands – 5,000-10,000 ppm of lead and about the same of zinc. He said they were looking at everything from doing nothing to removing it and taking it to some unknown location.

Ms. Ihle provided a map that shows the land ownership. Discussion took place regarding the EECA and future plans for the dam. She said the Forest Service and ASARCO had agreed to break the project into two pieces, which will help keep ASARCO and the state moving forward. She suggested that when they all receive the alternatives memo, they should come to agreement on the scope of what they want to do in the floodplain because the Forest Service and ASARCO will need to negotiate another order for the removal. She said the best way to do it, would be to do it as a field-based public involvement process.

Mr. Pfahl said ASARCO is currently on schedule with the plan in the approved implementation plan, with the two-year extension. He said ASARCO does not see a problem with meeting the schedule and that everybody realizes that they have to meet that schedule. He said ASARCO is committed to doing this project and will continue to move forward with this project and give it priority as long as they are in business.

Further discussion took place regarding the Forest Service EECA and possible removal of the dam. Also discussed was how the dam was formed from tailings and the mining technology of that era (1940s).

The tour moved on to view the Anaconda Wetlands Treatment System. Mr. Pfahl referred to a schematic in one of the packets, showing the Mike Horse and where attendees had just come from. He said there is a pipeline that comes down the road and brings the water down into the uppermost pond at this site, which is a filter bed. He said this particular one was reconstructed last January and that this one works.

Mr. Pfahl said water from what was called the Anaconda Mine is co-mingled at this site. He said there are about 10 gallons per minute of poor quality water flowing into the system through this open-limestone channel. He said all the water co-mingles in this filter pond and then flows through two subsurface wetlands, where bacteria break down the sulfate that is dissolved in the water. He said all the ponds have plastic liners in them and that this is subject to a permit with the state of Montana. Mr. Pfahl referred to pictures of the area that were taken before this system was constructed. He said the majority of the maintenance cost was associated with replacing the sand in the filters.

Tour attendees viewed the discharge from the Mike Horse and Anaconda Mines, which is permitted through the Montana MPDES Program. The implementation plan was discussed, as was the possibility of ASARCO coming back before the Board. Mr. Pfahl said the only thing ASARCO has been in noncompliance with regarding this stream is iron.

The tour moved to the Paymaster Creek. As attendees viewed rust-colored water, they were informed that this was due to natural impacts – there was no mining impacting this drainage at all.

Attendees moved on to view the Paymaster Repository. Mr. Pfahl said the material stacked there was from maintenance of the wetland treatment cells – stuff that was dug out of the filter beds last winter. He said this is an on-going repository – materials removed this year from the Upper Mike Horse will go here also. Discussion took place regarding available topsoil.

From the Paymaster Repository, attendees viewed the location of the Carbonate Mine in the distance. Mr. Pfahl referred to photos in the packets that showed the Carbonate area before and after reclamation. He explained how ASARCO reclaimed the Carbonate, and the technology used.

The tour moved on to view the concentrated tailings. Mr. Pfahl said this would be addressed in the first EECA. He said when the dam breached in 1975, a lot of this material washed down. He said to the extent the EECA says remove it, it would probably happen in 2006 – the last of the removals to occur.

Mr. Bowers said the biggest threat to this area is not the state it is in now, but that anytime there is a high-water event it becomes toxic. It happened in Spring 2002.

The tour moved on to view the reclaimed Carbonate Mine. Mr. Bowers had pictures of what the area looked like prior to reclamation. Mr. Pfahl said the tailings pond was a blood-red pool of water -- very reactive tailings. Water quality data were included on the last page of the packet submitted by ASARCO. He said reclamation began in the fall of 1993 and was completed in 1994. He said ASARCO imported topsoil for this site from a ranch. He figured about $5 - $6 thousand went into this project.

The tour adjourned at approximately 2:30 p.m.

Board of Environmental Review July 29, 2004, tour minutes approved:

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JOSEPH W. RUSSELL, M.P.H.
CHAIRMAN
BOARD OF ENVIRONMENTAL REVIEW

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DATE